



INVESTIGATOR'S ANNUAL REPORT

United States Department of the Interior
National Park Service

All or some of the information you provide may become available to the public.

OMB # (1024-0236)
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Reporting Year: 2007	Park: Shenandoah NP	Select the type of permit this report addresses: Scientific Study	
Name of principal investigator or responsible official: James Galloway		Office Phone: 434-924-1303	
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Additional investigators or key field assistants (first name, last name, office phone, office email)			
Name: Bernard J. Cosby		Phone: (434)924-7787	
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Project Title (maximum 300 characters): Shenandoah Watershed Study (SWAS)			
Park-assigned Study or Activity #: SHEN-00038	Park-assigned Permit #: SHEN-2004-SCI-0004	Permit Start Date: Jan 01, 2004	Permit Expiration Date: Dec 31, 2009
Scientific Study Starting Date: Jan 01, 1990		Estimated Scientific Study Ending Date: Dec 31, 2058	
For either a Scientific Study or a Science Education Activity, the status is: Continuing		For a Scientific Study that is completed, please check each of the following that applies: <input type="checkbox"/> A final report has been provided to the park or will be provided to the park within the next two years <input type="checkbox"/> Copies of field notes, data files, photos, or other study records, as agreed, have been provided to the park <input type="checkbox"/> All collected and retained specimens have been cataloged into the NPS catalog system and NPS has processed loan agreements as needed	
Activity Type: Research			
Subject/Discipline: Watershed Management / Assessment			

Purpose of Scientific Study or Science Education Activity during the reporting year (maximum 4000 characters):

The Shenandoah Watershed Study (SWAS) has both scientific and practical resource-management objectives. The underlying scientific objective of the SWAS program has been to improve understanding of hydro-biogeochemical processes and factors that govern ecosystem conditions in SNP's mountain watersheds. This scientific objective complements a resource management objective that has been defined by the need to document and assess change that is occurring in SNP's ecosystems.

Findings and status of Scientific Study or accomplishments of Science Education Activity during the reporting year (maximum 4000 characters):

This was the 28th year of watershed monitoring conducted in SHEN by the SWAS program. The monitoring framework currently includes 14 study watersheds selected to represent the major bedrock types in SHEN. Data collection includes quarterly, weekly and hourly sample collection for analysis of stream water composition, and discharge gauging.

The most significant findings and accomplishments for the 2007 calendar year:

• Trend analysis conducted for western Virginia mountain streams, including the 14 study sites in SHEN, indicate that recovery from effects of acidification did not occur in the 1990-2005 period. Regional stream water sulfate concentration increased; acid neutralizing capacity did not change. This is in contrast to observations for four other study regions considered in the 2006 Acid Rain Program Report prepared by the U.S. Environmental Protection Agency. Trends consistent with recovery were observed in the other regions, which are in the northeastern U.S. and northern Appalachian regions.

• A negative trend in streamwater silica concentrations, observed during recent years, was examined and determined to be associated with an increase in diatom concentrations. The apparent cause of the diatom increase was an increase in streamwater nitrate concentrations related to recent gypsy moth infestation and forest defoliation.

• Work to move the SWAS stream water chemistry database to the new NPSTORET system was initiated, with completion targeted for early 2008.

For Scientific Studies (not Science Education Activities), were any specimens collected and removed from the park but not destroyed during analysis?

No

Funding specifically used in this park this reporting year that was provided by NPS (enter dollar amount):
\$80000

Funding specifically used in this park this reporting year that was provided by all other sources (enter dollar amount):
\$0

List any other U.S. Government Agencies supporting this study or activity and the funding each provided this reporting year:

Paperwork Reduction Act Statement: A federal agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. Public reporting for this collection of information is estimated to average 1.625 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the forms. Direct comments regarding this burden estimate or any aspect of this form to Dr. John G. Dennis, Natural Resources (3127 MIB), National Park Service, 1849 C Street, N.W., Washington, DC 20240.